AMENDMENTS TO THE CLAIMS:

The following listing of claims supersedes all prior versions and listings of claims in this application:

LISTING OF CLAIMS:

1-8. Cancelled

9. (Currently Amended) An MRI apparatus configured to obtain an ASL (Arterial Spin Labeling) image of an image region to be imaged in a subject by performing scans independently in (a) a control mode, and (b) a tag mode according to an MRI pulse sequence based on an ASL technique, ~~wherein~~ said apparatus comprising:

an MRI pulse sequence controller adapted to produce a [[said]] pulse sequence which includes (a) a slice-selective pulse that spatially selects an upstream region outside said image region and excites transverse magnetization spins within said upstream region, and (b) a velocity-selective pulse train that selectively excites transverse magnetization spins having a constant velocity range in a region including said image region, and then performs excitation to cause the transverse magnetization spins to flip back to longitudinal magnetization,

said velocity-selective pulse train including a first flip pulse, an inversion pulse after said first flip pulse, a second flip pulse after said inversion pulse, a velocity encode pulse (a) after said first flip pulse and before said inversion pulse, and (b) after said inversion pulse and before said second flip pulse, and a gradient magnetic field pulse that is applied together with said first and second flip pulses as well as said inversion pulse to spatially select a region including said image region.

10. Cancelled

11. (Previously Presented) The MRI apparatus according to Claim 9, wherein:

said upstream region resides on an upstream side of a fluid flowing into said image region and is adjacent to the region which is selected by said velocity-selective pulse train, without any gap between said regions.

12. (Previously Presented) The MRI apparatus according to Claim 11, wherein:

said velocity encode pulse and a flip phase of said second flip pulse have magnitudes set in such a manner that the longitudinal magnetization of the magnetization spins in the fluid excited via said slice-selective pulse and said velocity-selective pulse train is of a same polarity in both of said control mode and said tag mode.

13. (Currently Amended) An MRI apparatus configured to obtain an ASL (Arterial Spin Labeling) image of an image region in a subject by performing scans independently in (a) a control mode, and (b) a tag mode according to an MRI pulse sequence based on an ASL technique, ~~wherein~~ said apparatus comprising:

an MRI pulse sequence controller adapted to produce a [[said]] pulse sequence which includes a pulse train that (a) spatially selects an upstream region outside said image region to be imaged and provides transverse magnetization spins within said upstream region, and (b) selectively excites transverse magnetization spins having a constant velocity range in a region including said image region causing the spins to undergo transition to transverse magnetization, and then performs excitation to cause the transverse magnetization spins to flip back to longitudinal magnetization spins,

said pulse train applying (i) a first flip pulse, (ii) an inversion pulse after said first flip pulse, (iii) a second flip pulse after said inversion pulse, (iv) a velocity encode pulse (a) in a period after said first flip pulse and before said inversion pulse, and (b) in a period after said inversion pulse and before said second flip pulse, and (v) a gradient magnetic field pulse together with said first and second flip pulses as well as said inversion pulse to spatially select a region including said image region.

14-18. Cancelled

19. (Currently Amended) An ASL (Arterial Spin Labeling) imaging ~~technique~~ process for obtaining an ASL image of an image region to be imaged in a subject by performing scans independently in (a) a control mode, and (b) a tag mode according to an MRI pulse sequence based on an ASL technique, ~~wherein~~ said process comprising:

causing an MRI pulse sequence controller to produce a [[said]] pulse sequence which includes (a) applying a slice-selective pulse that spatially selects a region outside said image region and excites magnetization spins within said image region for the spins to undergo transition to transverse magnetization and thereafter (b) applying a velocity-selective pulse train that selectively excites magnetization spins having a constant velocity range in a region including said image region for the spins to undergo transition to transverse magnetization, and then applying excitation to cause the transverse magnetization to flip back to longitudinal magnetization, followed by (c) applying an imaging pulse train,

said velocity-selective pulse train including (a) a first flip pulse, (b) an inversion pulse after said first flip pulse, (c) a second flip pulse after said inversion pulse, (d) a velocity encode pulse (i) in a period after said first flip pulse and before said inversion pulse, and (ii) in a period after said inversion pulse and before said second flip pulse, and

(e) a gradient magnetic field pulse applied together with said first and second flip pulses as well as said inversion pulse to spatially select a region including said image region.

20. Cancelled

21. (Currently Amended) An MRI method for obtaining an ASL (Arterial Spin Labeling) image of an image region to be imaged in a subject by performing scans independently in (a) a control mode, and (b) a tag mode according to an MRI pulse sequence based on an ASL technique, said method comprising using an MRI pulse sequence controller to :

~~generating~~ generate an ASL MRI pulse sequence which includes (a) a slice-selective pulse that spatially selects an upstream region outside said image region and excites transverse magnetization spins within said upstream region, and (b) a velocity-selective pulse train that selectively excites transverse magnetization spins having a constant velocity range in a region including said image region, and then performs excitation to cause the transverse magnetization spins to flip back to longitudinal magnetization,

said velocity-selective pulse train including (a) a first flip pulse, (b) an inversion pulse after said first flip pulse, (c) a second flip pulse after said inversion pulse, (d) a

velocity encode pulse (i) after said first flip pulse and before said inversion pulse, and (ii) after said inversion pulse and before said second flip pulse, and (e) a gradient magnetic field pulse applied together with said first and second flip pulses as well as said inversion pulse to spatially select a region including said image region.

22. (Previously Presented) The MRI method according to Claim 21, wherein:

said upstream region resides on an upstream side of a fluid flowing into said image region and is adjacent to the image region which is selected by said velocity-selective pulse train, without any gap between said regions.

23. (Previously Presented) The MRI method according to Claim 22, wherein:

said velocity encode pulse and a flip phase of said second flip pulse have magnitudes set in such a manner that the longitudinal magnetization of the magnetization spins in the fluid excited via said slice-selective pulse and said velocity-selective pulse train is of a same polarity in both of said control mode and said tag mode.

24. (Currently Amended) An MRI method for obtaining an ASL (Arterial Spin Labeling) image of an image region in a subject by performing scans independently in (a)

a control mode, and (b) a tag mode according to an MRI pulse sequence based on an ASL technique, said method comprising using an MRI pulse sequence controller to:

~~generating~~ generate an ASL MRI pulse sequence which includes a pulse train that (a) spatially selects an upstream region outside said image region to be imaged and provides transverse magnetization spins within said upstream region, and (b) selectively excites transverse magnetization spins having a constant velocity range in a region including said mage region causing the spins to undergo transition to transverse magnetization, and then performs excitation to cause the transverse magnetization spins to flip back to longitudinal magnetization spins,

said pulse train applying (i) a first flip pulse, (ii) an inversion pulse after said first flip pulse, (iii) a second flip pulse after said inversion pulse, (iv) a velocity encode pulse (a) in a period after said first flip pulse and before said inversion pulse, and (b) in a period after said inversion pulse and before said second flip pulse, and (v) a gradient magnetic field pulse together with said first and second flip pulses as well as said inversion pulse to spatially select a region including said image region.

25. (Currently Amended) An ASL (Arterial Spin Labeling) imaging method for obtaining an ASL image of an image region to be imaged in a subject by performing scans independently in (a) a control mode, and (b) a tag mode according to an MRI pulse

sequence based on an ASL technique, said method comprising using an MRI pulse sequence controller to:

~~applying~~ apply to said subject an ASL MRI pulse sequence which includes (a) a slice-selective pulse that spatially selects a region outside said image region and excites magnetization spins within said image region for the spins to undergo transition to transverse magnetization and thereafter (b) a velocity-selective pulse train that selectively excites magnetization spins having a constant velocity range for the spins to undergo transition to transverse magnetization, and then an excitation to cause the transverse magnetization to flip back to longitudinal magnetization, followed by (c) an imaging pulse train,

said velocity-selective pulse train including (a) a first flip pulse, (b) an inversion pulse after said first flip pulse, (c) a second flip pulse after said inversion pulse, (d) a velocity encode pulse (i) in a period after said first flip pulse and before said inversion pulse, and (ii) in a period after said inversion pulse and before said second flip pulse, and (e) a gradient magnetic field pulse applied together with said first and second flip pulses as well as said inversion pulse to spatially select a region including said image region.

26-28. Cancelled